

REMARKS

After the foregoing amendment, claims 9 and 28-33 are pending in the application. Applicant respectfully requests additional consideration and review of the claims in view of the foregoing amendment and the following remarks.

Objections to the Specification

The Examiner has objected to the specification for failing to provide proper antecedent basis for claims 6, 9, 24, and 28.

Claims 6 and 24 have been canceled. Applicant regards them as unnecessary in view of amendments made to other claims in the application. Claim 9, previously dependent from now canceled claim 8, which was previously dependent from now canceled claim 1, has been rewritten in independent form to incorporate all the limitations of its predecessors, (i.e., claim 1 and claim 8, respectively) except that the language appearing in original claim 1 at lines 11-16 does not appear in amended claim 9. Also, original claim 9 has been amended based on the disclosure on page 5, lines 13-15 to provide proper antecedent basis.

Also, Applicant has responded to the objection by amending claim 28. The specification provides support for two bridges coupled to a parent bus with the host bus master operable to use the bridge devices, in, for example, Figures 1 and 3. Figure 1 shows two Layered I²C Protocol (LIP) bridges attached to a single parent bridge and a single child bus, and Figure 3 shows interconnected LIP bridges. Moreover, it is indicated on page 28, lines 5-11 of the specification that

availability is greatly enhanced with the ability to partner a LIP bridge device with a second LIP bridge device to serve the same master and set of target I²C devices. Partnering LIP bridges provides redundancy in case of LIP bridge failure, and takes advantage of partnering signals so that each LIP bridge device can reset or disable the other LIP bridge device to

isolate it in case of failure. Partnering additionally allows the host bus master to cross check data provided by the partner LIP bridge, as a technique to virtually guarantee data integrity.

Moreover, it is indicated on page 29, lines 12-15 that

in certain high precision, low fault tolerate applications, the host bus master performs every child bus read operation on two different LIP bridges to ensure data integrity of the LIP bridge.

Applicant therefore respectfully requests reconsideration and withdrawal of the objection to the specification.

Objections to the Claims

The Examiner has objected to claims 1-25 and 27 on the grounds of informalities. Applicant has canceled claims 1-8, 10-25, and 27. Applicant regards them as unnecessary in view of new claims and amendments made to other claims in the application. Applicant has amended claim 9 per the suggestions of the Examiner.

In view of the foregoing, Applicant respectfully requests the objection to claim 9 be withdrawn.

Claim Rejections Under 35 USC §§112

Claims 1, 6, 9, 15, 17, 24 and 26 were rejected under 35 USC 112. Of these, only claim 9 remains in the application. Claim 9 has been amended in the manner described hereinabove and the rejection of claim 9 under 35 USC 112 is believed to have been obviated by those amendments.

Claim Rejections Under 35 USC §§102 (e)

The Examiner has rejected claims 1-5, 13-18, 22, 23, 26 and 27 under 35 USC § 102(e) as being anticipated by Barenys et al (U.S. Patent No. 6,145,036 A).

Applicant has canceled claims 1-5, 13-18, 22, 23, 26 and 27.

Rejections Under 35 USC § 103(a)

The Examiner has rejected claims 7, 8, 10, 11, 12, 19, 20, 21, 25 and 28 under 35 USC § 103(a) as being unpatentable over Barenys et al (U.S. Patent No. 6,145,036 A) in view of various other references.

Applicant has canceled claims 7, 8, 10, 11, 12, 19, 20, 21, and 25. Applicant regards them as unnecessary in view of new claims and amendments made to other claims in the application.

Claim 28, previously dependent from now canceled claim 27, has been rewritten in independent form to incorporate all the limitations of claim 27, except that the language appearing in original claim 27 at lines 3 and 4 has been slightly modified in amended claim 28 to more particularly point out and define that which Applicant regards as the invention.

An important aspect of Applicant's invention is its unique means of insuring high reliability on a hierarchy of I²C buses provided by the use of paired Layered I²C Protocol (LIP) bridges. Partnering LIP bridges allows the host I²C bus master to cross check data provided by the partner LIP bridge as a technique to virtually guarantee data integrity, as described on page 28, lines 5 -11 of Applicant's specification.

This aspect of the invention is particularly pointed out in claim 28, lines 12-16 which indicate that the host I²C bus master is operable to use the recited two LIP bridges "to determine if transactions through a particular LIP bridge are corrupted and to verify integrity of data received from said target devices."

Turning to the application itself, Figure 1 in Applicant's drawings shows a host I²C bus master and LIP bridges on a LIP (i.e., parent) bus and target devices on a child bus. The host I²C bus master can access any of the target devices on the child bus via either LIP bridge on the LIP bus. By performing the same transaction to a target device on the child bus via both LIP bridges, the host I²C bus master can compare the results to see if they match (page 28, lines

10-11 of Applicant's specification). In comparing results, each LIP bridge calculates a CRC value on each packet (page 5, lines 13-15). Therefore, each transaction's data transmission can be assured to be correct if the CRC values are correct due to the data and address protection provided by the Layered I²C Protocol. It is thus possible for a host I²C bus master to determine if transactions through a particular LIP bridge are being corrupted.

Turning now to the cited references, Applicant agrees with the Examiner that, similar to Applicant, Barenys provides an I²C bus expansion processor. However, the bus expansion processor is used in Barenys to isolate various buses containing expansion devices in the system and contain a bus failure to one component in the system, as pointed out in Barenys in column 1, lines 62-65. Contrary to Applicant's invention, Barenys does not teach two expansion processors interconnected on a parent bus. The Examiner has combined Barenys with Khosrowpour as the basis for rejecting claim 28. Applicant respectfully submits that even if it were obvious to combine Barenys with Khosrowpour in the manner suggested in the Office Action, the resulting combination would not embody Applicants' inventive teachings nor anticipate Applicants' claims.

Although Khosrowpour provides two bridges that are interconnected, Khosrowpour's second bridge is used only as a standby. In effect, only one bridge performs transactions while the other bridge is on standby in case of failure. See, for example, in column 2, lines 41 – 46 of the Khosrowpour patent.

Thus contrary to the recitations of claim 28, the asserted Barenys/Khosrowpour combination would not be one in which the host I²C bus master uses the at least two bridge devices "to determine if transactions through a particular LIP bridge are corrupted." Nor is the cited combination one in which "integrity of data received from said target devices" is verified, as claim 28 also requires.

In view of the foregoing, it is respectfully submitted that claim 28 patentably distinguishes the invention from the cited Barenys/Khosrowpour combination.

New Claims 29-33

New claims 29-33, which depend either directly or indirectly from claim 28, are directed to various aspects of the invention. Support in the specification for the recitation of these claims can be found, for example, as follows:

Claim 29	<u>page 28, lines 7-10</u>
Claim 30	<u>page 17, lines 24-25 along with Table 4</u> <u>(Special Functions) on pages 18-19</u>
Claim 31	<u>page 17, lines 24-25 along with Table 4</u> <u>(Special Functions) on pages 18-19</u>
Claim 32	<u>page 28, lines 5-7 and Figures 1 & 3</u>
Claim 33	<u>page 29, lines 12-15 along with page 5,</u> <u>lines 13-15 and page 5, lines 21-22</u>

The limitations in at least certain ones of these claims serve to further distinguish the invention from the cited Barenys/Khosrowpour combination. For example, claim 29 adds the limitation that each of the LIP bridge devices is adapted to use partnering signals to reset and disable the other LIP bridge to isolate faults. Applicant finds nothing in, for example, the Khosrowpour reference suggesting that each of its two bridge devices can reset or disable each other, as this claim requires.

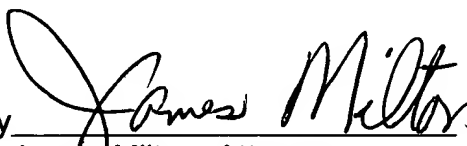
In addition, claim 33 indicates that a difference in CRC values calculated for the same packet handled by the two or more bridges is the mechanism by which the host I²C bus master determines that messages through a particular bridge are corrupt. Applicant finds nothing in the cited prior art that anticipates this limitation.

Conclusion

In view of the foregoing amendments and remarks, Applicant submits that claims 9 and 28-33 are in condition for allowance, and reconsideration is therefore respectfully requested. If there are any outstanding issues that the Examiner feels may be resolved by way of a telephone conference, the Examiner is invited to contact the undersigned to resolve the issues.

Respectfully submitted,

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Atts.

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